

I CLAIM AS MY INVENTION:

1. A nerve stimulation device comprising:
 - a pulse generator which generates stimulation pulses;
 - an electrode arrangement connected to the pulse generator adapted to interact with a living subject to deliver the stimulation pulses to stimulate the phrenic nerve;
 - an esophageal electrode adapted for insertion in the esophagus of the living subject for obtaining measurement signals;
 - a signal analyzer connected to the esophageal electrode for filtering myoelectrical signals originating from diaphragm of the living subject out of the measurement signals; and
 - a regulating unit connected to the signal analyzer and to the pulse generator for regulating the pulse generator dependent on the myoelectrical signals.
2. A nerve stimulation device as claimed in claim 1 further comprising a monitoring unit adapted to interact with the living subject for monitoring breathing of the living subject and which generates a monitoring unit output supplied to said regulating unit, said regulating unit regulating the pulse generator dependent on said monitoring unit output as well as dependent on said myoelectrical signals.
3. A nerve stimulation device as claimed in claim 2 wherein said monitoring unit comprising a breathing detector selected from the group consisting of an external ventilator, a spirometer, an impedance measurement arrangement, a thorax circumference measurement arrangement, and a gas analyzer.

4. A nerve stimulation device as claimed in claim 1 wherein said signal analyzer also filters electrocardiographic signals out of said measurement signals, and wherein said regulating unit regulates said pulse generator dependent on said electrocardiographic signals as well as dependent on said myo-electrical signals.

5. A nerve stimulation device as claimed in claim 1 further comprising a cardiac monitoring device adapted to interact with the living subject to obtain cardiac signals, said regulating unit being connected to said cardiac monitoring unit and regulating said pulse generator dependent on said cardiac signals as well as dependent on said myo-electrical signals.

6. A nerve stimulation device as claimed in claim 1 wherein said electrode arrangement comprises a plurality of electrode leads and wherein said pulse generator is connected to said electrode arrangement via an output interface comprising a plurality of channels, with one channel for each electrode lead, and wherein said regulating unit regulates said pulse generator to individually control delivery of stimulation pulses via the respective electrode leads.